



US Army Corps
of Engineers
Kansas City District

**KANSAS CITY DISTRICT
CORPS OF ENGINEERS**

and the

**SAMBO SLOUGH LEVEE DISTRICT NO. 1, FARMERS DRAINAGE & LEVEE
DISTRICT, WAKENDA LEVEE DISTRICT NO. 1 AND ROOT LEVEE DISTRICT**

Public Law 84-99 of the Flood Control Act of 1944

**Levee Rehabilitation – NEPA Review, Environmental
Assessment & DRAFT Finding of No Significant Impact**

**SAMBO SLOUGH LEVEE DISTRICT NO. 1 (ITEM 63), FARMERS
DRAINAGE & LEVEE DISTRICT (ITEM 63B), WAKENDA LEVEE
DISTRICT NO. 1 (ITEM 63C), AND ROOT LEVEE DISTRICT (ITEM 63G),
NON-FEDERAL, EMERGENCY LEVEE REHABILITATION PROJECT**

**Missouri River
Carroll County, Missouri**

May 2008



DEPARTMENT OF THE ARMY
KANSAS CITY DISTRICT, CORPS OF ENGINEERS
700 FEDERAL BUILDING
KANSAS CITY, MISSOURI 64106-2896

Finding of No Significant Impact

Sambo Slough Levee District No. 1 (Item 63), Farmers Drainage & Levee District (Item 63B), Wakenda Levee District No. 1 (Item 63C), and Root Levee District (Item 63G)
Levee Rehabilitation Project
Carroll County, Missouri

Project Summary

The U.S. Army Corps of Engineers (USACE), Kansas City District in cooperation with the project sponsors, Sambo Slough Levee District No. 1, Farmers Drainage & Levee District, Wakenda Levee District No. 1, and Root Levee District propose to construct the Sambo Slough Levee District No. 1, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District Levee Rehabilitation Project, under the authority of Public Law 84-99 of the Flood Control Act of 1944. Due to the limited damage of the levee units, only two alternatives were considered: (1) In-place repairs of levee breach with re-seeding and (2) No-action. The proposed project would involve the re-seeding of landside and riversides slopes, in-place repair of levee breach, and excavation and repairs to drainage structure with backfill to original design grades to repair the agricultural levees damaged by the declared flood event of May 6, 2007. The proposed repairs are located just southeast of the town of Carrollton, Carroll County, Missouri, along the left bank of the Missouri River from river mile 269.2 to river mile 288.0, with tiebacks along Wakenda and Moss Creeks.

Alternatives

Due to the limited damages of the levee units, only two alternatives were considered: (1) In-place repairs with re-seeding (**Recommended Plan**) and (2) No action.

Recommended Plan

Sambo Slough Levee District No. 1

The recommended repair action consists of re-seeding riverside levee slopes (sta. 2+00 to 140+00 and 163+50 to 198+00). Construction areas would be seeded and mulched.

Farmers Drainage & Levee District

The recommended repair action consists of in-place repair of levee breach (sta. 165+19 to 171+49); re-seeding of riverside levee slope (sta. 0+00 to 61+00); and re-seeding of landside

levee slope (sta. 90+56 to 165+19 and 171+49 to 184+38). Minor amounts of stockpiled soil on, and adjacent to, the levee embankment, as well as soil from a semi-open riverward area with sparse isolated timber will be used as borrow. The timber will be avoided to the extent possible; however, some (silver maple < 9 inches in diameter breast height) will be impacted. The U.S. Fish and Wildlife Service has stated that natural plant succession should provide adequate revegetation for these impacted areas. Construction areas would be seeded and mulched.

Wakenda Levee District No. 1

The recommended repair action consists of re-seeding riverside levee slope (sta. 137+70 to 412+00). Construction areas would be seeded and mulched.

Root Levee District

The recommended repair action consists of excavation and repairs to drainage structure, with disturbed area backfilled to original design grades (sta. 124+30); re-seeding landside levee slope (sta. 3+09 to 13+50 and 18+63 to 73+49); and re-seeding riverside levee slope (sta. 73+49 to 116+21, 121+59 to 140+25, and 145+25 to 147+00). Minor amounts of borrow will be required for this repair action, and borrow will be obtained by removing silt from within an existing landward drainage ditch or by widening the existing ditch into the adjacent agricultural lands. A small fringe of timber (< 9 inches diameter breast height) will be removed. The U.S. Fish and Wildlife Service has stated that natural plant succession should provide adequate revegetation for non-mast producing trees removed. Construction areas would be seeded and mulched.

Summary of Environmental Impacts

The flood risk management level achieved by the recommended plan would result in protection similar to the original pre-flood levees. The recommended plan would result in no impacts to any Federally-listed threatened or endangered species or their habitat. The recommended plan would result in no impacts to any properties listed, proposed for listing, eligible for listing, or potentially eligible for listing in the National Register of Historic Places. Areas of the existing levee sections damaged by flooding would be temporarily disturbed by the proposed construction activity. A minor amount of timber (silver maple < 9 inches in diameter breast height) will be impacted by the proposed project. The adverse effects associated with the proposed project are short term/minor associated with project construction. These minor adverse effects would be greatly offset by restoring the flood risk management capability, and its associated social and economic benefits of the existing levee system. Alternative 1, In-place repairs with re-seeding, meets the project purpose and need of rehabilitating the flood risk management capability and the associated social and economic benefits of the existing levee system. Of the two (2) alternatives considered, Alternative 1 –In-place repairs with re-seeding is recommended because it has a positive cost/benefit ratio, fulfills all the needs of the different levee districts, and is consistent with protection of the nation's environment.

Mitigation Measures

The recommended plan will result in minor impacts to mitigable resources as defined in USACE Planning regulations. A minor amount of timber will be impacted by the proposed project (silver maple < 9 inches in diameter breast height). The USACE in cooperation with the Missouri

Department of Conservation and the U.S. Fish and Wildlife Service has determined that natural plant succession should provide adequate re-vegetation to these areas. Therefore, no mitigation measures are warranted or proposed.

Public Availability

As part of the NEPA review for the proposed project, the USACE circulated a Notice of Availability (Notice) of the Environmental Assessment (EA) and the Draft Finding of No Significant Impact (FONSI), dated June 2, 2008, with a thirty-day comment period ending on July 2, 2008 to the public and resource agencies. The Notice was e-mailed to individuals/agencies/businesses listed on the USACE Regulatory e-mail mailing list. The Notice informed these individuals that the EA and FONSI were available on the USACE webpage or that they could request the EA and FONSI in writing, in order to provide comment. One comment was received from the U.S. Fish and Wildlife Service (USFWS) by letter dated June 16, 2008. The USFWS stated that the proposed activity is not likely to adversely affect federally listed species or designated critical habitat (Appendix I).

Levee rehabilitation projects completed by the Corps under authority of Public Law 84-99 generally do not require the preparation of an Environmental Impact Statement. These projects typically result in long-term social and economic benefits and the adverse environmental effects are typically minor/long-term and minor/short-term construction related. Minor long-term impacts associated with these projects are typically well outweighed by the overall long-term social and economic benefits of these projects. As described above, the recommended plan is consistent with this assessment of typical levee rehabilitation projects completed by the Corps under authority of Public Law 84-99 of the Flood Control Act of 1944.

Conclusion

After evaluating the anticipated environmental, economic, and social effects of the proposed activity, it is my determination that construction of the proposed Sambo Slough Levee District No. 1, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District Levee Rehabilitation Project does not constitute a major Federal action that would significantly affect the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

Date: 11 July 08



Roger A. Wilson, Jr.
Colonel, Corps of Engineers
District Commander



DEPARTMENT OF THE ARMY
KANSAS CITY DISTRICT, CORPS OF ENGINEERS
700 FEDERAL BUILDING
KANSAS CITY, MISSOURI 64106-2896

EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers, Kansas City District (CENWK), in cooperation with the project sponsors, Sambo Slough Levee District No. 1, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District propose to construct the Sambo Slough Levee District No.1, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District Levee Rehabilitation Project, under the authority of Public Law 84-99 of the Flood Control Act of 1944. The proposed project would involve the re-seeding of landside and riversides slopes, in-place repair of levee breach, and excavation and repairs to drainage structure with backfill to original design grades. Repairs are required as a result of the flood event declared on May 6, 2007.

The Sambo Slough levee segment consists of approximately 36,400 linear feet of earthen flood control works (FCW) on the left bank of the Missouri River between river mile 282.5 and 274.0 in Carroll County, Missouri. The Sambo Slough Levee District No. 1 FCW protects approximately 11,181 acres of agricultural land (all in cropland). The Sambo Slough levee is part of a complete flood control unit which works in concert with the Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District. These levees collectively protect 39 businesses, 54 residences (occupancy varies), 50 barns, 85 machine sheds, 123 outbuildings, 3 irrigation systems, 142 grain bins, approximately 8 miles of State Highway Route 24 and 65, approximately 2 miles of State Highway Route 10, approximately 6 miles of State Highway B, approximately 44 miles of gravel surfaced roads and numerous miles of unimproved farm to market roads, approximately 6 miles of fiber optic lines, approximately 40 miles of underground telephone cable, approximately 20 miles of rural water lines, and numerous miles of overhead electrical lines. The recommended repair action consists of re-seeding riverside levee slopes (sta. 2+00 to 140+00 and 163+50 to 198+00). Construction areas would be seeded and mulched.

The Farmers levee segment consists of approximately 18,438 linear feet of earthen FCW on the left bank of the Missouri River between river mile 270.2 to 269.2, and the right descending bank of Wakenda Creek in Carroll County, Missouri. The levee protects approximately 1,530 acres of agricultural lands (1,475 in cropland) in addition to the assets described above. The recommended repair action consists of in-place repair of levee breach (sta. 165+19 to 171+49); re-seeding of riverside levee slope (sta. 0+00 to 61+00); and re-seeding of landside levee slope (sta. 90+56 to 165+19 and 171+49 to 184+38). Minor amounts of stockpiled soil on, and adjacent to, the levee embankment, as well as soil from a semi-open riverward area with sparse isolated timber will be used as borrow. The timber will be avoided to the extent possible; however, some (silver maple < 9 inches in diameter breast height) will be impacted. The U.S. Fish and Wildlife Service has stated that natural plant succession should provide adequate revegetation for non-mast producing trees removed. Construction areas would be seeded and mulched.

The Wakenda levee segment consists of approximately 41,957 linear feet of earthen FCW on the left bank of the Missouri River between River Mile 288.0 to 282.5, and the left bank of Moss Creek in Carroll County, Missouri. The levee protects approximately 6,458 acres of agricultural lands (all in cropland) in addition to the assets described above. The recommended repair action consists of re-seeding riverside levee slope (sta. 137+70 to 412+00). Construction areas would be seeded and mulched.

The Root levee segment consists of approximately 14,700 linear feet of earthen FCW on the left bank of the Missouri River between River Mile 274.0 to 270.2 in Carroll County, Missouri. The levee protects approximately 3,200 acres of agricultural lands (all in cropland) in addition to the assets described above. The recommended repair action consists of excavation and repairs to drainage structure, with disturbed area backfilled to original design grades (sta. 124+30); re-seeding landside levee slope (sta. 3+09 to 13+50 and 18+63 to 73+49); and re-seeding riverside levee slope (sta. 73+49 to 116+21, 121+59 to 140+25, and 145+25 to 147+00). Minor amounts of borrow will be required for this repair action, and borrow will be obtained by removing silt from within an existing landward drainage ditch or by widening the existing ditch into the adjacent agricultural lands. A small fringe of timber (< 9 inches diameter breast height) will be removed. The USACE in cooperation with the Missouri Department of Conservation and the U.S. Fish and Wildlife Service has determined that natural plant succession should provide adequate re-vegetation to these areas. Construction areas would be seeded and mulched.

As part of the NEPA review for the proposed project, the USACE circulated a Notice of Availability (Notice) of the Environmental Assessment (EA) and the Draft Finding of No Significant Impact (FONSI), dated June 2, 2008, with a thirty-day comment period ending on July 2, 2008 to the public and resource agencies. The Notice was e-mailed to individuals/agencies/businesses listed on the USACE Regulatory e-mail mailing list. The Notice informed these individuals that the EA and FONSI were available on the USACE webpage or that they could request the EA and FONSI in writing, in order to provide comment.

One comment was received from the U.S. Fish and Wildlife Service (USFWS) by letter dated June 16, 2008. The USFWS stated that the proposed activity is not likely to adversely affect federally listed species or designated critical habitat (Appendix I).

Additional information concerning this project may be obtained from Ms. Lekesha Reynolds, Environmental Resources Specialist, PM-PR, Kansas City District - U.S. Army Corps of Engineers, by writing the above address, or by telephone at 816-389-3160.

**NEPA REVIEW
ENVIRONMENTAL ASSESSMENT
&
DRAFT FINDING OF NO SIGNIFICANT IMPACT**

**PUBLIC LAW 84-99
SAMBO SLOUGH LEVEE DISTRICT NO. 1, FARMERS DRAINAGE AND LEVEE
DISTRICT, WAKENDA LEVEE DISTRICT NO. 1, AND ROOT LEVEE DISTRICT,
LEVEE REHABILITATION PROJECT
CARROLL COUNTY, MISSOURI**

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**NEPA REVIEW
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&
FINDING OF NO SIGNIFICANT IMPACT**

**PUBLIC LAW 84-99
SAMBO SLOUGH LEVEE DISTRICT NO. 1, FARMERS DRAINAGE AND LEVEE
DISTRICT, WAKENDA LEVEE DISTRICT NO. 1 AND ROOT LEVEE DISTRICT
LEVEE REHABILITATION PROJECT
CARROLL COUNTY, MISSOURI**

Section 1: INTRODUCTION

This Environmental Assessment provides information that was developed during the National Environmental Policy Act (NEPA) public interest review of the proposed Public Law 84-99 Sambo Slough Levee District No. 1, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District Levee Rehabilitation Project.

Section 2: AUTHORITY

The Kansas City District – U.S. Army Corps of Engineers (USACE), in cooperation with the project sponsors, the Sambo Slough Levee District No. 1, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District propose to construct the Sambo Slough Levee District No. 1, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District Levee Rehabilitation Project under the authority of Public Law 84-99 of the Flood Control Act of 1944.

Section 3: PROJECT LOCATION

The Sambo Slough Levee District No. 1, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District levee are located in Carroll County, Missouri, just southeast of the town of Carrollton, Missouri, along the left bank of the Missouri River from river mile 269.2 to 288.0 (Appendix I, Attachment B-1), and are described further below.

The Sambo Slough levee segment consists of approximately 36,400 linear feet of earthen flood control works (FCW) on the left descending bank (LDB) of the Missouri River between river mile 282.5 and 274.0 in Carroll County, Missouri.

The Farmers levee segment consists of approximately 18,438 linear feet of earthen FCW on the LDB of the Missouri River between river mile 270.2 to 269.2, and the right descending bank (RDB) of Wakenda Creek in Carroll County, Missouri.

The Wakenda levee segment consists of approximately 41,957 linear feet of earthen FCW on the LDB of the Missouri River between River Mile 288.0 to 282.5, and the LDB of Moss Creek in Carroll County, Missouri.

The Root levee segment consists of approximately 14,700 linear feet of earthen FCW on the LDB of the Missouri River between River Mile 274.0 to 270.2 in Carroll County, Missouri.

Section 4: EXISTING CONDITION

A total area of about 22,369 acres is protected by the levee, including 22,314 acres of crops. Other property protected includes 54 homes and 39 businesses, as well as 258 farm outbuildings, 16 miles of state highway, 44 miles of gravel-topped county roads, 3 irrigation systems, and 142 grain bins. Total property value in the protected areas is conservatively estimated at more than \$55 million. The declared flood event on 6 May 2007 caused the follow damages to the Sambo Slough Levee District No. 1, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District levees:

The damages to the Sambo Slough levee segment consist of intermittent reaches of lost (destroyed) sod cover on levee embankment slopes at stations 2+00 to 140+00 and 163+50 to 198+00.

The damages to the Farmers levee segment consist of one levee breach at station 165+19 to 171+49 (Appendix I, Attachment D-2); and intermittent reaches of lost (destroyed) sod cover on levee embankment slopes at station 0+00 to 61+00, 90+65 to 165+19, and 171+49 to 184+38.

The damages to the Wakenda levee segment consist of intermittent reaches of lost (destroyed) sod cover on levee embankment slopes at station 137+70 to 412+00.

The damages to the Root levee segment consist of one area of landside and riverside slope erosion, with associated drainage structure damage; and intermittent reaches of lost (destroyed) sod cover on levee embankment slopes at stations 3+09 to 13+50, 18+63 to 116+21, 121+59 to 140+25, and 145+25 to 147+00.

Section 5: PURPOSE & NEED FOR ACTION

The project purpose and need is to rehabilitate the damaged levees and restore the associated social and economic benefits. The Sambo Slough Levee District No. 1, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District received damages to sections of their respective levees during the 6 May 2007 declared flood event. Prior to the May 2007 event, the Sambo Slough Levee District No. 1, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District levees provided an approximately 10+ year level of flood risk management. In their current damaged state, the Sambo Slough Levee District No. 1, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District levees are estimated to provide an approximately two-year level of protection. The existing condition exposes all public and private infrastructure and agricultural croplands to a high level of risk from future flooding. Failure to restore the flood risk management capability

of the levee system would keep area residents livelihood and social well-being in turmoil, subject to the continuous threat of flooding until a level of flood protection is restored. Failure to reconstruct the levees could adversely affect the tax base of the counties and municipal governments and special districts, such as school districts. In addition, loss of jobs and potential losses in agricultural production on lands previously protected by the levees would also be incurred.

Section 6: ALTERNATIVES CONSIDERED BUT NOT SELECTED

One alternative was considered and not selected: (1) No action.

The "No Action" Alternative would involve no construction and the levees would remain in their damaged condition. The No Action alternative would continue to expose public and private infrastructure and agricultural croplands to a high risk level of future flooding.

Section 7: RECOMMENDED ALTERNATIVE

Because natural revegetation would not accomplish the project purpose, in-place repairs with re-seeding for lost (destroyed) sod was considered as described below.

Sambo Slough Levee District No. 1

The recommended repair action consists of re-seeding riverside levee slopes (sta. 2+00 to 140+00 and 163+50 to 198+00). Construction areas would be seeded and mulched.

Farmers Drainage & Levee District

The recommended repair action consists of in-place repair of levee breach (sta. 165+19 to 171+49); re-seeding of riverside levee slope (sta. 0+00 to 61+00); and re-seeding of landside levee slope (sta. 90+56 to 165+19 and 171+49 to 184+38). Minor amounts of stockpiled soil on, and adjacent to, the levee embankment, as well as soil from a semi-open riverward area with sparse isolated timber will be used as borrow. The timber will be avoided to the extent possible; however, some (silver maple < 9 inches in diameter breast height) will be impacted. The U.S. Fish and Wildlife Service as stated that natural plant succession should provide adequate revegetation for non-mast producing trees removed. Construction areas would be seeded and mulched.

Wakenda Levee District No. 1

The recommended repair action consists of re-seeding riverside levee slope (sta. 137+70 to 412+00). Construction areas would be seeded and mulched.

Root Levee District

The recommended repair action consists of excavation and repairs to drainage structure, with disturbed area backfilled to original design grades (sta. 124+30) (Appendix I, Attachment D-1); re-seeding landside levee slope (sta. 3+09 to 13+50 and 18+63 to 73+49); and re-seeding riverside levee slope (sta. 73+49 to 116+21, 121+59 to 140+25, and 145+25 to 147+00). Minor amounts of borrow will be required for this repair action, and borrow will be obtained by removing silt from within an existing landward drainage ditch or by widening the existing ditch

into the adjacent agricultural lands (Appendix I, Borrow Map 1). A small fringe of timber (< 9 inches diameter breast height) will be removed. The USACE in cooperation with the Missouri Department of Conservation and the U.S. Fish and Wildlife Service has determined that natural plant succession should provide adequate re-vegetation to these areas. Construction areas would be seeded and mulched.

Section 8: NATIONAL ENVIRONMENTAL POLICY ACT REVIEW

As part of the NEPA review for the proposed project, the USACE circulated a Notice of Availability (Notice) of the Environmental Assessment (EA) and the Draft Finding of No Significant Impact (FONSI), dated June 2, 2008, with a thirty-day comment period ending on July 2, 2008 to the public and resource agencies. The Notice was e-mailed to individuals/agencies/businesses listed on the USACE Regulatory e-mail mailing list. The Notice informed these individuals that the EA and FONSI were available on the USACE webpage or that they could request the EA and FONSI in writing, in order to provide comment.

One comment was received from the U.S. Fish and Wildlife Service (USFWS) by letter dated June 16, 2008. The USFWS stated that the proposed activity is not likely to adversely affect federally listed species or designated critical habitat (Appendix I).

Section 9: AFFECTED ENVIRONMENT:

The project area consists of agricultural row crop ground located on the Missouri River flood plain between river miles 269.2 and 288.0. The project area disturbance involves approximately 13 acres or less for Sambo Slough, approximately 10 acres or less (including borrow locations) for Farmers, approximately 20 acres or less for Wakenda, and approximately one acre (including borrow locations) for Root. The Corps Kansas City District's Standard Operating Procedures for identification of potential borrow sites, which was developed in consultation with the resource agencies to avoid/and or minimize adverse environmental effects, would be implemented for this project if different or additional borrow sites are needed.

Primary resources of concern identified during the evaluation included: noise levels, water quality, fish and wildlife, vegetation, wetlands, threatened and endangered species, agricultural, archeological and historical resources, flood control, economics and aesthetics. Projects impacts to other resources were determined to be no effect.

Section 10: ENVIRONMENTAL CONSEQUENCES:

Noise levels

The recommended plan, Alternative 1, would result in minor short term construction related noise impacts. These impacts are the result of the operation of heavy machinery during project construction. These noise levels would be in addition, but similar to those produced by agricultural equipment which is routinely operated in the project area. No residences, businesses, churches, park areas or other areas sensitive to increased noise levels were identified in the project area. There is a remote chance that the noise from project construction could

disturb the occasional boater on the nearby Missouri River or person(s) participating in outdoor recreation on the private land in the project area.

The "No Action" alternative would produce no increase in noise levels in the project area.

Water quality

The recommended plan, Alternative 1, would result in minor, temporary, construction related adverse impacts to water quality resulting from site runoff and increased turbidity. The minor impacts associated with the recommended plan would be avoided and/or minimized to the greatest extent possible by the implementation of Best Management Practices and measures required under the National Pollutant Discharge Elimination System (NPDES) permit (see Appendix II). The best management practices would be designed to minimize the incidental fallback of material into waterways during construction and to minimize the introduction of fuel, petroleum products, or other deleterious material from entering into the waterway. Such measures could include use of erosion control fences; storing equipment, solid waste, and petroleum products above the ordinary high water mark and away from areas prone to runoff; and requiring that all equipment be clean and free of leaks. To prevent fill from reaching water sources by wind or runoff, fill would be covered, stabilized or mulched, and silt fences would be used as required. The NPDES permit will be obtained prior to project construction. All appropriate measures will be taken to minimize erosion and storm water discharges during and after construction. The recommended plan does not involve placement of fill material in a Water of the United States and therefore, Clean Water Act, Section 401 Water Quality Certification and Section 404b1 are not required.

In the "No Action" Alternative with the absence of the Federal action addressing levee improvements, a high water event could result in the release of a variety of industrial chemicals and substantially impact the natural and human environment within the project area. Avoiding repair actions could result in adverse impacts to water quality from increased levels of nutrient loading and wastes, including runoff of pollutants from industrial sources, petroleum products, and non-point sources of human and animal wastes.

Fish and wildlife

The recommended plan, Alternative 1, would result in minor, temporary, construction related adverse impacts to fish and wildlife resources. The impacts to wildlife resources would be related to noise and visual disturbance during the construction activity. The impacts to fishery resources would be related to site runoff and increased turbidity, which could make feeding, breeding, and sheltering difficult for species not accustomed to these conditions.

The "No Action" Alternative would have minimal effects on fish and wildlife resources. These impacts would arise from flooding within the now unprotected area. Wetland species may benefit as more frequent flooding could occur in the now unprotected areas. Wetlands would likely recharge since they are now hydrologically connected to the Missouri River. Other terrestrial organisms could be killed, be temporarily displaced or have their habitat degraded by flooding.

Threatened and Endangered Species

The recommended plan, Alternative 1, would have no adverse effects on any Federally-listed threatened or endangered species or their habitat. Pallid sturgeon (*Scaphirhynchus albus*) are found primarily in the Missouri River and Mississippi River. No work is proposed within the Missouri River. Indiana bat (*Myotis sodalis*) roost in trees that tend to be greater than 9 inches diameter breast height during the spring and summer, and hibernate in caves during the fall and winter. Levee work will be conducted during the winter months, and only small trees will be removed during construction. No impacts to any state listed threatened or endangered species or their habitat were identified.

The "No Action" alternative would have no adverse effects on any Federally-listed threatened or endangered species or their habitat. No impacts to any state listed threatened or endangered species or their habitat were identified.

Vegetation

The recommended plan, Alternative 1, would be constructed along existing levee alignments. A few isolated trees (<9 inches breast diameter height) would be cleared during project construction. The USACE in cooperation with the Missouri Department of Conservation and the U.S. Fish and Wildlife Service has determined that natural plant succession should provide adequate re-vegetation to these areas.

The "No Action" Alternative could result in increases to the floodplain and to floodplain vegetation if lands are abandoned from farming due to the high risk of flooding. Overtime, successional vegetative growth could result in large expanses of floodplain forest.

Wetlands

The recommended plan, Alternative 1, would have no adverse effects on wetlands. Borrow material used for levee repairs will be obtained from upland sites or from an existing landward drainage ditch.

The "No Action" Alternative could result in benefits to wetlands located on the flood plain within the now unprotected areas as these areas would be subject to a high level risk of future flooding.

Agricultural

The recommended plan would have no adverse impact on agricultural production.

The "No Action" Alternative would adversely impact agricultural activity by exposing approximately 22,369 acres of agricultural lands to increased flooding. This loss of agricultural production would have related impacts such as lost income, lower tax base, and decreased land value.

Archeological and Historical Resources

The recommended plan would have no impact to sites listed on or eligible for inclusion on the National Register of Historic Places (NRHP). A background check of the NRHP and site location maps identified no previously recorded sites within or near the proposed project areas.

In a letter to State Historic Preservation Officer (SHPO), the Corps recommended that the project would have no effect on historic properties and that the project should be allowed to proceed. SHPO concurred with this recommendation on November 26, 2007 (Appendix II). The project will be coordinated with appropriate federally recognized Native American tribes (Tribes). If in the unlikely event that archeological material is discovered during project construction, work in the area of discovery will cease, the discovery would be investigated by a qualified archeologist, and the find would be coordinated with SHPO and the Tribes.

The "No Action" Alternative would result in no effects to archaeological or historical resources.

Flood control

The recommended plan would restore an approximately 10+ year level of flood protection to the existing Associated Levee Districts levee system, which would equal the level that existed prior to the declared flood event of 6 May 2007. The area is located in the base floodplain and is subject to Executive Order 11988, "Floodplain Management". In addition, since the proposed levee repair would restore this levee to its near original alignment and pre-flood grade and cross section, no increase in floodwater surface elevations would occur. As the recommended plan would not directly or indirectly support more development in the floodplain or encourage additional occupancy and/or modify of the base floodplain, the Corps has determined that the recommended plan complies with the intent of Executive Order 11988.

The "No Action" Alternative would continue to expose all public and private infrastructure and agricultural croplands previously protected to a high level risk of future flooding.

Economics

Based on the Corps' economic analysis, the recommended plan is the most economical and prudent repair action. With the implementation of the recommended plan, the levees would be restored to a 10-year level of flood protection. Public and private infrastructure and agricultural croplands protected by the levee prior to the flood damage would continue to be protected against a 10-year flood event. Economic conditions are unlikely to change from those of pre-damage levee conditions with the repair of this levee system.

The "No Action" Alternative has a zero benefit to cost ratio and would continue to expose all public and private infrastructure and agricultural croplands previously protected by the levee to a high level risk of future flooding. People's livelihood and social well-being would remain in turmoil, subject to the continuous threat of flooding until the level of flood protection is restored. Failure to reconstruct the levee could adversely affect the tax base of the counties and municipal governments and special districts, such as school districts. In addition, loss of jobs and potential losses in agricultural production on lands protected by the levee would also be incurred.

Aesthetics

The recommended plan, Alternative 1, would result in very minor and temporary adverse aesthetic impacts associated with the construction activity. The human population that could potentially be affected by the activity would be expected to be very low, restricted to the occasional boater on the Missouri River or person(s) participating in outdoor recreation on the

private land in the project area. Upon completion of the project, esthetic impact of the project would be the same as the original levee.

The "No Action" Alternative would have no effect on aesthetics.

Section 11: CUMULATIVE IMPACTS

The combined incremental effects of human activity are referred to as cumulative impacts (40CFR 1508.7). While these incremental effects may be insignificant on their own, accumulated over time and from various sources, they can result in serious degradation to the environment. The cumulative impact analysis must consider past, present, and reasonably foreseeable actions in the study area. The analysis also must include consideration of actions outside of the Corps, to include other State and Federal agencies. As required by NEPA, the Corps has prepared the following assessment of cumulative impacts related to the alternatives being considered in this EA.

Historically, the Missouri River and its floodplain has been altered by bank stabilization, dams on the river and its tributaries, roads/bridges, agricultural and urban levees, channelization, farming, water withdrawal for human and agricultural use, urbanization and other human uses. These activities have substantially altered the terrestrial and aquatic ecosystem within the Missouri River watershed.

Currently, the Corps is undertaking studies of the Federal levees along the Missouri River to determine if measures to improve the reliability of these existing flood risk management projects are warranted. In addition, the Corps, which administers Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act, has issued and will continue to evaluate permits authorizing the placement of fill material in the Waters of the United States and/or work on, in, over or under a navigable water of the United States including the Missouri River and its tributaries. These levee repair projects typically result in minor impacts to the aquatic ecosystem. The Corps, under the authority of the Public Law 84-99 Levee Rehabilitation and Inspection Program, has and will continue to provide rehabilitation assistance to Federal and non-Federal levee sponsors along the Missouri River which participate in the Public Law 84-99 Program. These projects typically result in minor short term construction related impacts to fish and wildlife and the habitats upon which they depend. Resources typically affected by this type of project generally include, but are not limited to, wetlands, flood plain values, water quality, and fish and wildlife habitat. It should be noted that these projects do not result in an addition to flood heights or reduced flood plain area but are merely a form of maintenance to that which had previously existed.

Of the reasonably foreseeable projects and associated impacts that would be expected to occur, further urbanization of the floodplain will probably have the greatest impact on these resources in the future. The possibility of wetland conversion and the clearing of riparian habitat is ever present, and these activities also tend to impact these resources. Construction of additional agricultural levees may occur provided land becomes available for this purpose; however, the trend seems to be moving in the opposite direction and towards urban development. The era of

major reservoir construction has likely past, thus impacts from these projects likely will not occur.

The adverse effects associated with the proposed project are long-term/minor associated with the loss of agricultural cropland, and short term/minor associated with project construction. These minor adverse effects would be greatly offset by restoring the flood risk management capability and its associated social and economic benefits of the existing levee system. The PL 84-99 Program is designed to merely bring the damaged levees back to pre-existing conditions (i.e., the status quo). Thus, no significant cumulative impacts associated with the proposed rehabilitation of the existing levee system have been identified.

Section 12: MITIGATION MEASURES

The recommended plan will result in minor impacts to mitigable resources as defined in USACE Planning regulations but not under Section 404 of the Clean Water Act. A minor amount of timber will be impacted by the proposed project (silver maple < 9 inches in diameter breast height). However, the USACE in cooperation with the Missouri Department of Conservation and the U.S. Fish and Wildlife Service has determined that natural plant succession should provide adequate re-vegetation to these areas. Therefore, no mitigation measures are warranted or proposed.

Section 13. COMPLIANCE WITH ENVIRONMENTAL QUALITY STATUTES

Compliance with Designated Environmental Quality Statutes that have not been specifically addressed earlier in this report is covered in Table 1. Additional information is listed for the most pertinent statutes following the table.

Table 1
Compliance of Preferred Alternative with Environmental Protection
Statutes and Other Environmental Requirements

Federal Policies	Compliance
Archeological Resources Protection Act, 16 U.S.C. 470, et seq.	Full Compliance
Clean Air Act, as amended, 42 U.S. C. 7401-7671g, et seq.	Full Compliance
Clean Water Act (Federal Water Pollution Control Act), 33 U.S.C. 1251, et seq.	Full Compliance
Coastal Zone Management Act, 16 U.S.C. 1451, et seq.	Not Applicable
Endangered Species Act, 16 U.S.C. 1531, et seq.	Full Compliance
Estuary Protection Act, 16 U.S.C. 1221, et seq.	Not Applicable
Federal Water Project Recreation Act, 16 U.S.C. 4601-12, et seq.	Full Compliance
Fish and Wildlife Coordination Act, 16 U.S.C. 661, et seq.	Full Compliance
Land and Water Conservation Fund Act, 16 U.S.C. 4601-4, et seq.	Not Applicable
Marine Protection Research and Sanctuary Act, 33 U.S.C. 1401, et seq.	Not Applicable
National Environmental Policy Act, 42 U.S.C. 4321, et seq.	Full Compliance
National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470a, et seq.	Full Compliance
Rivers and Harbors Act, 33 U.S.C. 403, et seq.	Full Compliance
Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, et seq.	Full Compliance
Wild and Scenic River Act, 16 U.S.C. 1271, et seq.	Not Applicable
Farmland Protection Policy Act, 7 U.S.C. 4201, et seq.	Full Compliance
Protection & Enhancement of the Cultural Environment (Executive Order 11593)	Full Compliance
Floodplain Management (Executive Order 11988)	Full Compliance
Protection of Wetlands (Executive Order 11990)	Full Compliance
Environmental Justice (Executive Order 12898)	Full Compliance

NOTES:

- a. Full compliance. Having met all requirements of the statute for the current stage of planning (either preauthorization or postauthorization).

- b. Partial compliance. Not having met some of the requirements that normally are met in the current stage of planning.
- c. Noncompliance. Violation of a requirement of the statute.
- d. Not applicable. No requirements for the statute required; compliance for the current stage of planning.

Clean Water Act, Sections 404 and 401

The recommended plan does not involve placement of fill material in a Water of the United States and therefore, Clean Water Act, Section 401 Water Quality Certification and Section 404(b)(1) are not required.

Clean Water Act, Section 402

A NPDES permit has been received from Missouri Department of Natural Resources and is located in Appendix II.

Endangered Species Act, Section 7

The Corps has made a determination that no impacts to any federally listed threatened or endangered species or their habitat would occur with the project action. Coordination of ESA would be completed upon review of this EA and concurrence of this determination with the USFWS.

National Historic Preservation Act

In a letter to State Historic Preservation Officer (SHPO), the Corps recommended that the project would have no effect on historic properties and that the project should be allowed to proceed. SHPO concurred with this recommendation on November 26, 2007 (Appendix II).

Section 14: CONCLUSION & RECOMMENDATION

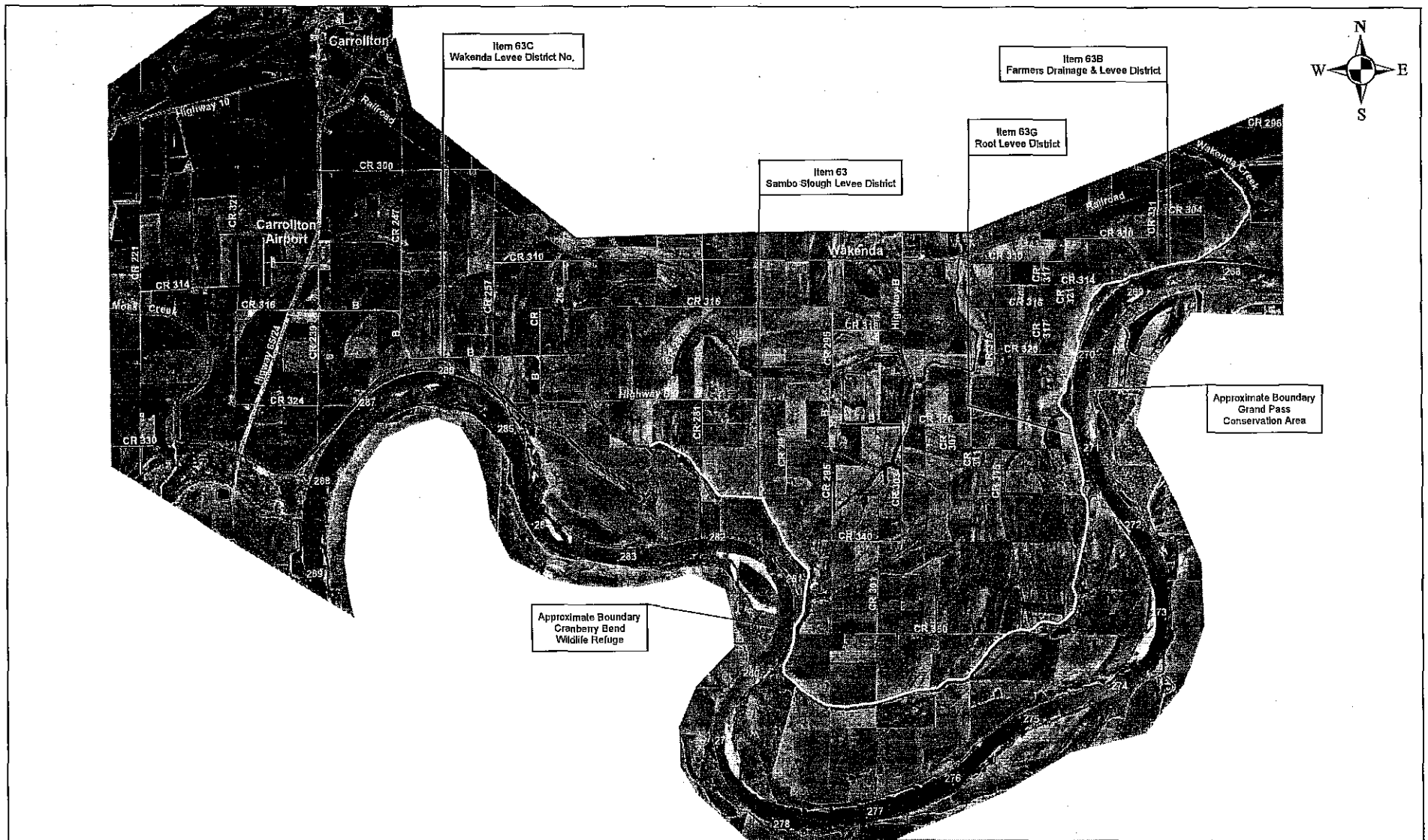
The flood risk management level achieved by the recommended plan would be the same as the original pre-flood levees. The recommended plan would result in no impacts to any Federally-listed threatened or endangered species or their habitat. The recommended plan would result in no impacts to any properties listed, proposed for listing, eligible for listing, or potentially eligible for listing in the National Register of Historic Places. Areas of the existing levee sections damaged by flooding would be temporarily disturbed by the proposed construction activity. The adverse effects associated with the proposed project are short term/minor associated with project construction. These minor adverse effects would be greatly offset by restoring the flood risk management capability and its associated social and economic benefits of the existing levee system. Alternative 1 – Combination meets the project purpose and need of rehabilitating the flood damage reduction capability and its associated social and economic benefits of the existing levee system. Of the two alternatives considered, Alternative 1 – Combination is recommended because it satisfies all the repair needs for the complete levee system, has a positive cost/benefit ratio, and is consistent with protection of the environment.

Based on coordination with the resource agencies and input gained through a public interest review, as documented in this Environmental Assessment, the Kansas City District – Corps of Engineers has made a determination that this project would have no significant impacts on the human environment including natural and cultural resources and Federally-listed threatened and endangered species; therefore, a Finding of No Significant Impact (FONSI) has been prepared.

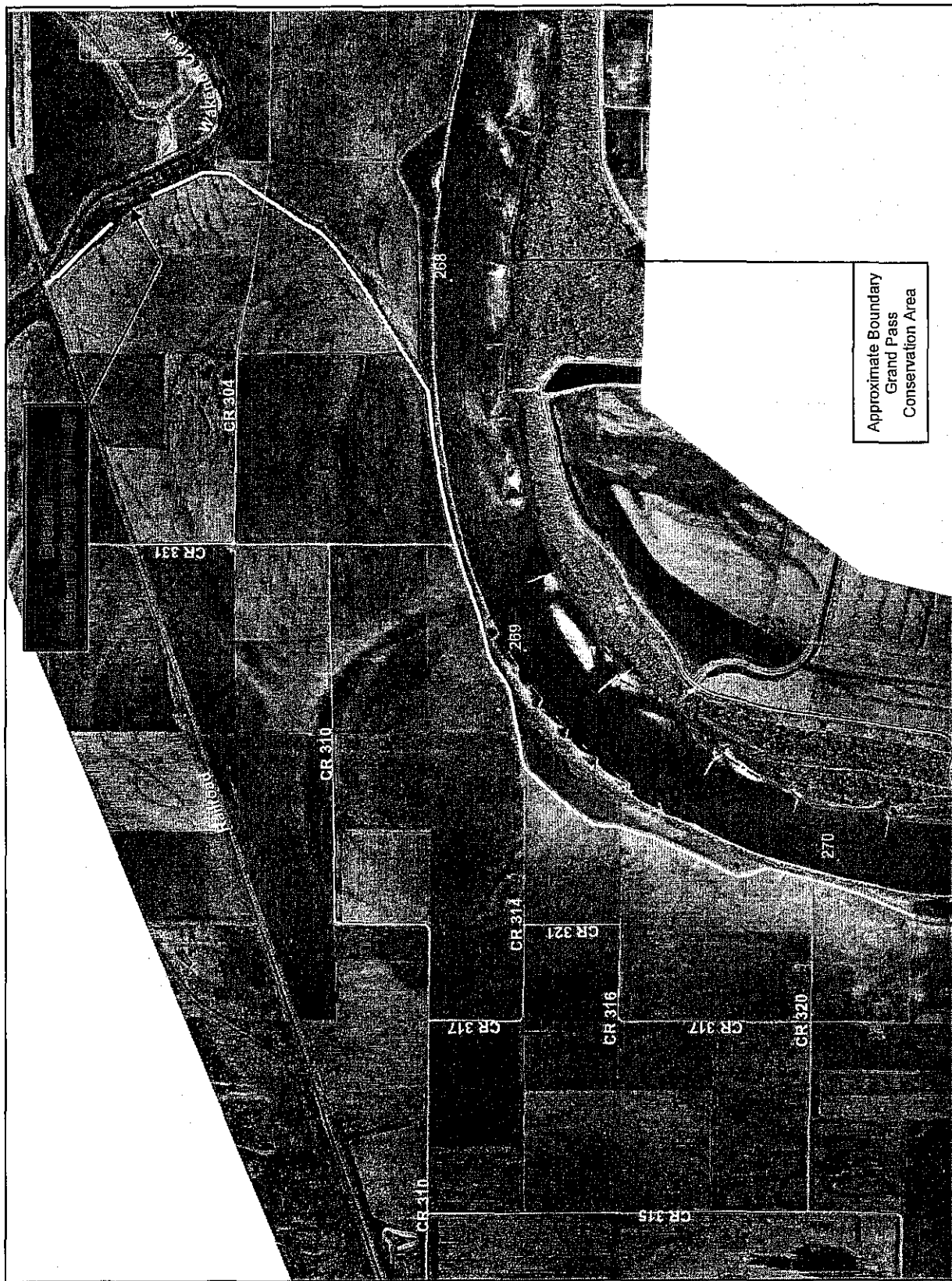
This NEPA decision document will be forwarded to the District Engineer with a recommendation for approval.

Section 15: PREPARERS

This EA and the associated draft FONSI were prepared by Ms. Lekesha Reynolds (Environmental Resource Specialist), with relevant sections prepared by Mr. Timothy Meade (Cultural Resources). The address of the preparers is: U.S. Army Corps of Engineers, Kansas City, District; PM-PR, Room 843, 601 E. 12th St, Kansas City, MO 64106.



Complete Flood Control Work
Item's 63C, 63, 63G & 63B



Item 63B
Farmers Drainage & Levee District



Item 63G
Root Levee District

ATTACHMENT D - 1



Root Levee District

Borrow Map 1

APPENDIX II – NEPA REVIEW

*Sambo Slough Levee District No. 1 (Item 63),
Farmers Drainage & Levee District (Item 63B),
Wakenda Levee District No. 1 (Item 63C), and
Root Levee District (Item 63G)
P.L. 84-99 Levee Rehabilitation Project
Carroll and Ray Counties, Missouri
May 2008*



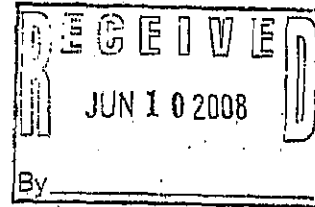
DEPARTMENT OF THE ARMY
KANSAS CITY DISTRICT, CORPS OF ENGINEERS
700 FEDERAL BUILDING
KANSAS CITY, MISSOURI 64106-2896

REPLY TO

ATTENTION OF:

June 6, 2008

Planning, Programs and Project Management Division
Planning Branch



Charlie Scott
US Fish and Wildlife Service
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203

In accordance with provisions of the National Environmental Policy Act of 1969 (NEPA), enclosed for your review and comment is the Environmental Assessment (EA) and Draft Finding of No Significant Impacts (FONSI) for the Sambo Slough Levee District, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District Emergency Levee Rehabilitation Project.

The Kansas City District - U.S. Army Corps of Engineers (CENWK), in cooperation with the project sponsor, the Sambo Slough Levee District, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District, propose to construct the Sambo Slough Levee District, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District Emergency Levee Rehabilitation Project under the authority of Public Law 84-99, of the Flood Control Act of 1944. Under this authority, the Corps of Engineers can provide assistance to public agencies in responding to flood emergencies.

The Sambo Slough Levee District, Farmers Drainage and Levee District, Wakenda Levee District No. 1, and Root Levee District is located in Carroll County, Missouri, near town of Carrollton, along the left descending bank of the Missouri River from River Mile 269.2 to River Mile 288.0, with tie-backs along Wakenda and Moss Creeks.

The proposed project would involve re-seeding of landside and riverside slopes, in-place repair of levee breach, and excavation and repairs to drainage structure with backfill to original design grades. Repairs are required as a result of the flood event declared on 6 May 2007.

Written comments on the EA and Draft FONSI should be mailed to Ms. Lekesha Reynolds, Environmental Resources Specialist, Corps of Engineers, Kansas City District, PM-PR, 601 E. 12th Street, Kansas City, Missouri 64106-2896, or by phone at (816) 389-3160 or by email at lekesha.w.reynolds@usace.army.mil. The public review and comment period for the EA and draft FONSI will end 30 days from the date of this letter.

"The U.S. Fish and Wildlife Service has reviewed the subject proposal and accompanying information and determined that the activity as described is not likely to adversely affect federally listed species or designated critical habitat. Consequently, this concludes section 7 consultation. Please contact the Missouri Department of Conservation (578/522-4115) for state listed species of concern."

Field Supervisor

Date

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

Matt Blunt, Governor • Doyle Childers, Director

www.dnr.mo.gov

November 26, 2007

Timothy Meade
Corps of Engineers, Kansas City District
700 Federal Building
Kansas City, Missouri 64106-2896

Re: Emergency Repairs, Sambo Slough, Farmers, Wakenda & Root Levees (COE) Carroll County,
Missouri

Dear Mr. Meade:

Thank you for submitting information on the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which requires identification and evaluation of cultural resources.

We have reviewed the information provided concerning emergency repairs to Sambo Slough, Farmers, Wakenda and Root Levees. Based on this review we concur with your recommendation that the projects are in areas of low potential or areas of previous disturbance, or have been previously surveyed with negative results, and that there will be **no historic properties affected**.

Please be advised that, should project plans change, information documenting the revisions should be submitted to this office for further review. In the event that cultural materials are encountered during project activities, all construction should be halted, and this office notified as soon as possible in order to determine the appropriate course of action.

If you have any questions, please write Judith Deel at State Historic Preservation Office, P.O. Box 176, Jefferson City, Missouri 65102 or call 573/751-7862. Please be sure to include the SHPO Log Number **(006-CA-08)** on all future correspondence or inquiries relating to this project.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE



Mark A. Miles
Director and Deputy
State Historic Preservation Officer

MAM:jd



Matt Blunt, Governor • Doyle Childers, Director

DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

NOV 30 2007

U.S. Army Corps of Engineers, KC District
700 Federal Building, 601 E. 12th Street
Kansas City, MO 64106

Dear Permittee:

Pursuant to the Federal Water Pollution Control Act, under the authority granted to the State of Missouri and in compliance with the Missouri Clean Water Law, we have issued and are enclosing a General State Operating Permit for U.S. Army Corps of Engineers, KC District.

Please review the requirements of your permit. Monitoring reports that may be required by this permit must be submitted on a periodic basis. Copies of the necessary report forms, if required, are enclosed and should be mailed to the regional office listed below. Please contact that office for additional forms.

This General Permit is both your federal discharge permit and your new state operating permit and replaces all previous state operating permits and letters of approval for the discharges described within. In all future correspondence regarding this permit, please refer to your general permit number as shown on page one of your permit.

If you were affected by this decision, you may appeal to have the matter heard by the administrative hearing commission. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission.

If you have any questions concerning this permit, please do not hesitate to contact the Water Protection Program at PO Box 176, Jefferson City, MO 65102 (573) 751-1300.

Sincerely,

WATER PROTECTION PROGRAM

NPDES Permit and Engineering Section

Enclosure

RECEIVED
REGULATORY BRANCH
07 DEC -5 PM 2:30

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



**MISSOURI STATE OPERATING PERMIT
WATER POLLUTION CONTROL PROGRAM**

General Operating Permit

In compliance with the Missouri Clean Water Law, (chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.: MO-R100043

Owner: U.S. Army Corps of Engineers, KC District
Address: 700 Federal Building, 601 E. 12th Street
Kansas City, MO 64106

Continuing Authority: Same
Same

Facility Name: U.S. Army Corps of Engineers, KC District
Facility Address: 700 Federal Building, 601 E. 12th Street
Kansas City, MO 64106

Legal Description: See Page 2, Various County

Receiving Stream: See Page 2
First Classified Stream: See Page 2

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein.

FACILITY DESCRIPTION All Outfalls, SIC 1629

Construction or land disturbance activity (e.g., clearing, grubbing, excavating, grading, and other activity that results in the destruction of the root zone) that are performed by or under contract to a city, county, or other governmental jurisdiction that has a storm water control program for land disturbance activities that has been approved by the Missouri Department of Natural Resources.

This permit authorizes only wastewater, including storm waters, discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System, it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law

May 31, 2007
Effective date

November 30, 2007
Issue date

A handwritten signature in dark ink, appearing to read "Doyle Childers".

Doyle Childers, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

May 30, 2012
Expiration date
MO 780-1481 (7-94)

A handwritten signature in dark ink, appearing to read "Edward Galbraith".

Edward Galbraith
Director of Staff, Clean Water Commission

Page 2
Permit Number MO-R100043

This permit accompanies the applicant's General Permit 41 (GP0-41) for the repair of levees due to damages from flooding.

Repair activities may take place anywhere along the Missouri and Grand Rivers and tributaries thereof. Location would be in any county along these waterways from Rulo Nebraska to Saint Louis Missouri.

Detailed receiving stream information is available upon request.

APPLICABILITY

1. This general permit **authorizes** the discharge of storm water and certain non-storm water discharges from land disturbance sites that are performed by or under contract to a city, county, or other governmental jurisdiction that has a storm water control program and/or SWPPP for land disturbance activities that has been approved by the Missouri Department of Natural Resources.
2. If at any time the Missouri Department of Natural Resources determines that the quality of waters of the state may be better protected by requiring the owner/operator of a permitted site to apply for site specific permits, the Department may require a city, county, or other governmental jurisdiction to obtain a site specific operating permit [10 CSR 20-6.010 (13) and 10 CSR 20-6.200(6)].

The Department may require the permittee to apply for and obtain a site specific or different general permit if:

- a. The permittee is not in compliance with the conditions of this general permit;
- b. The discharge no longer qualifies for this general permit due to changed site conditions and regulations; or
- c. Information becomes available that indicates water quality standards have been or may be violated.

The Department will notify the permittee in writing if there is a need to apply for a site-specific permit or a different general permit. When a site specific permit or different general permit is issued to the authorized permittee, the permit that has been replaced will be automatically terminated upon the effective date of the site specific or different general permit, whichever the case may be. The permittee shall submit the appropriate forms to the Department to terminate the permit that has been replaced.

3. Any owner/operator authorized by a general permit may request to be excluded from the coverage of the general permit and apply for a site-specific permit [10 CSR 20-6.010 (13) and 10 CSR 20-6.200(6)].
4. The owner of the property and/or right-of-way on which a land disturbance site is located is responsible for compliance with this permit. This remains true in the event the owner chooses to contract for the design and/or construction of a project.
5. This permit does not authorize land disturbance activities in violation of the Historic Preservation Act or the Endangered Species Act.
6. This permit is not transferable to other owners or operators.

EXEMPTIONS FROM STATE PERMIT REQUIREMENTS

1. Sites that discharge all storm water runoff directly to a combined sewer system are exempt from state storm water permit requirements.
2. Land disturbance activities as identified in 10 CSR 20-6.200(1)(B) are exempt from state storm water permit requirements as long as there is no violation of water quality standards.
3. Sites that disturb less than one acre of total land area that are not part of a common plan or sale are exempt from state storm water requirements as long as there is no violation of water quality standards.
4. Agricultural storm water discharges and irrigation return flows are exempt from state storm water permit requirements as long as there is no violation of water quality standards. *Animal Feeding Operations (AFO)* are not included in the agricultural exemption.

REQUIREMENTS

1. All water pollution controls on site shall conform to the DNR-approved storm water control program and/or SWPPP of the city, county, or other governmental jurisdiction in which such land disturbance activities are occurring. The requirements of the approved storm water control program and/or SWPPP must be at least as stringent and may be more stringent than those described in this permit and 10 CSR 20-6.200. The requirements of the DNR approved program and/or SWPPP are enforceable under this permit. The permittee must conduct inspections of all land disturbance sites as described under Requirements, 12. of this permit. If the permittee is a regulated MS4, the approved program and/or SWPPP must comply with the Permittee's MS4 permit.
2. The permittee shall provide a list of active land disturbance sites (of one acre or more) to the department on a quarterly basis. The list shall contain the name of the project, location, receiving stream(s) for each outfall, description of the project, number of acres disturbed, and projected date for completion of the project. The permittee shall submit quarterly reports each January, April, July, and October. The reports must be received by the end of the specified month.
3. Discharges shall not cause violations of the Water Quality Standards 10 CSR 20-7.031(3), which states, in part, that no water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
 - a. Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
 - b. Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
 - c. Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
 - d. Waters shall be free from substances or conditions in sufficient amounts to have a harmful effect on human, animal or aquatic life.
 - e. There shall be no significant human health hazard from incidental contact with the water;
 - f. There shall be no acute toxicity to livestock or wildlife watering;
 - g. Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
 - h. Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles, or equipment and solid waste as defined in Missouri's Solid Waste Law, Section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to Section 260.200-260.247.
4. Good housekeeping practices shall be maintained by the permittee to keep solid waste from entering waters of the state.
5. The permittee shall comply with all federal and state regulations regarding underground storage, above ground storage, and dispensers of fueling facilities.
6. The permittee shall manage hazardous wastes in accordance with the provisions of the Missouri Hazardous Waste Laws and Regulations. This includes hazardous wastes that are transported, stored, or used for maintenance, cleaning, and repair.
7. The permittee shall designate an individual to be responsible for environmental matters. The individual responsible for environmental matters shall have a thorough and demonstrable knowledge of the site's SWPPP and sediment and erosion control practices in general. The individual responsible for environmental matters or a designated inspector knowledgeable in erosion, sediment, and stormwater control principles, shall inspect all structures that function to prevent pollution of waters of the state.

8. The permittee shall store all paint, solvents, petroleum products and petroleum waste products, and storage containers (such as drums, cans, or cartons) according to best management practices (BMPs). The materials exposed to precipitation shall be stored in watertight, structurally sound, closed containers. All containers shall be inspected for leaks or spillage during the once per week inspection of BMPs.
9. The primary requirement of this permit is the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). The permittee must retain a copy of the SWPPP on the construction site during normal working hours and make it available to a department representative upon request.

The SWPPP shall:

- a. Incorporate required practices identified below,
- b. Incorporate erosion control practices specific to site conditions, and
- c. Provide for maintenance and adherence to the plan.

Before any land disturbance activity takes place, the permittee shall develop a SWPPP. This plan must be developed before a permit can be issued and made available as specified under RECORDS

The permittee shall fully implement the provisions of the SWPPP required under this part as a condition of this general permit throughout the term of the land disturbance project.

The purpose of the SWPPP is to ensure the design, implementation, management, and maintenance of Best Management Practices (BMPs) in order to reduce the amount of sediment and other pollutants in storm water discharges associated with the land disturbance activities; comply with the Missouri Water Quality Standards; and ensure compliance with the terms and conditions of this general permit.

The permittee shall select, install, use, operate, and maintain appropriate BMPs for the permitted sites. The following manuals are acceptable resources for the selection of appropriate BMPs.

Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices, (Document number EPA 832-R-92-005) published by the United States Environmental Protection Agency (USEPA) in 1992. This manual is available at The USEPA internet site <http://cfpub1.epa.gov/npdes/stormwater/swppp.cfm>;

The latest version of ***Protecting Water Quality: A field guide to erosion, sediment and storm water best management practices for development sites in Missouri***. This manual is available on the department's internet site at: <http://www.dnr.mo.gov/env/wpp/wpcp-guide.htm>

The permittee is not limited to the use of these guidance manuals. Other guidance publications may be used to select appropriate BMPs. However, all BMPs should be described and justified in the SWPPP. EPA and DNR continue to update BMP information on their web sites. It is recommended that the permittee review this information when developing a SWPPP.

10. SWPPP Requirements: The following information and practices shall be provided for in the SWPPP.
 - a. **Site Description**: In order to identify the site, the SWPPP shall include the facility and outfall information provided in the application form. The SWPPP shall have sufficient information to be of practical use to contractors and site construction workers to guide the installation and maintenance of BMPs. Site boundaries and outfalls shall be marked on a site map included as part of the SWPPP.
 - b. **Selection of Temporary and Permanent Non-Structural BMPs**: The permittee shall select appropriate non-structural BMPs for use at the site and list them in the SWPPP. The SWPPP shall require existing vegetation to be preserved where practical. The time period for disturbed areas to be without vegetative cover is to be minimized to the maximum extent practicable. For sites that will be inactive six months or more, establishing a vegetative cover is a highly recommended choice for a proper BMP.

Examples of non-structural BMPs which the permittee should consider specifying in the SWPPP include: preservation of trees and mature vegetation, protection of existing vegetation for use as buffer strips (vegetative buffer strips of 50 feet are especially encourage along drainage courses), mulching, sodding, temporary seeding, final seeding, geotextiles, stabilization of disturbed areas, preserving existing stream channels as overflow areas when channel straightening or shortening is allowed, soil stabilizing emulsions and tackifiers, mulch tackifiers, stabilized site entrances/exits, and other appropriate BMPs.

- c. Selection of Temporary and Permanent Structural BMPs: The permittee shall select appropriate structural BMPs for use at the site and list them in the SWPPP. Examples of structural BMPs that the permittee should consider specifying in the SWPPP include: diverting flows from undisturbed areas away from disturbed areas, silt (filter fabric and/or straw bale) fences, earthen diversion dikes, drainage swales, sediment traps, rock check dams, subsurface drains (to gather or transport water for surface discharge elsewhere), pipe slope drains (to carry concentrated flow down a slope face), level spreaders (to distribute concentrated flow into sheet flow), storm drain inlet protection and outlet protection, reinforced soil retaining systems, gabions, temporary or permanent sediment basins, and other appropriate BMPs.
- d. Description of Best Management Practices: The SWPPP shall include a description of both structural and non-structural BMPs that will be used at the site. The SWPPP shall provide the following general information for each BMP which will be used one or more times at the site:
 - i. Physical description of the BMP,
 - ii. Site and physical conditions that must be met for effective use of the BMP,
 - iii. BMP installation/construction procedures, including typical drawings, and
 - iv. Operation and maintenance procedures for the BMP.

The SWPPP shall provide the following information for each specific instance where a BMP is to be installed:

- vi. Whether the BMP is temporary or permanent,
 - vii. Where, in relation to other site features, the BMP is to be located,
 - viii. When the BMP will be installed in relation to each phase of the land disturbance procedures to complete the project, and
 - viii. What site conditions must be met before removal of the BMP if the BMP is not a permanent BMP.
- e. Discharges to Valuable Resource Waters:

Storm water discharges as described in 10.e.1, 10.e.2, and 10.e.3 shall be considered discharges to "valuable resource waters".

- 1. Storm water discharges within 1000 stream feet of: Streams identified as a losing stream*,
 - i. Streams or lakes listed as an outstanding national or state resource water*,
 - ii. Reservoirs or lakes used for public drinking water supplies*; or
 - iii. Streams, lakes or reservoirs identified as critical habitat for endangered species*;
 - iv. Streams, lakes, or reservoirs listed as impaired for sediment and/or an unknown pollutant by standard MDNR methodology.*
- 2. Storm water discharges:
 - i. Within 100 stream feet of a permanent stream (class P) or major reservoir (class L2)*, or
 - ii. Within two stream miles upstream of biocriteria reference locations*.
- 3. Storm water discharges where:
 - i. Any of the disturbed area is defined as a wetland (Class W), by 10 CSR 20-7.031(1)(F)7*; or
 - ii. The storm water discharges to a sinkhole or other direct conduit to groundwater.

- f. Total Settable Solids from a storm water outfall must not exceed 2.5 ml/L/hr.
- g. If the disturbed area discharges to a valuable resource water, Total Settable Solids shall not exceed 0.5 ml/L/hr.

(For the purpose of this permit, the term "stream feet" shall mean the distance in feet following the nearest drainage channel from the land disturbance to the valuable resource water.)

* Identified or described in 10 CSR 20, Chapter 7. These regulations are available at many libraries and may be purchased from MDNR by calling the Water Pollution Control Program at (573)751-1300. The regulations are also available from the Missouri Secretary of States Office.

- h. Disturbed Areas: Slopes for disturbed areas must be defined in the SWPPP. A site map or maps, defining the sloped areas for all phases of the project, must be included in the SWPPP. Where soil disturbing activities cease in an area for 14 days or more, the permittee shall construct BMPs to establish interim stabilization. Interim stabilization shall consist of well established and maintained BMPs that are reasonably certain to protect waters of the state from sediment pollution. These BMPs may include a combination of sediment basins, check dams, sediment fences, and mulch. The types of BMPs used must be suited to the area disturbed, taking into account the number of acres exposed and the steepness of the slopes. If the slope of the area is greater than 3:1 (3 feet horizontal to 1 foot vertical) or if the slope is greater than 3% and greater than 150 feet in length, then the permittee must establish interim stabilization within 7 days of ceasing operations on that part of the site. Delays in work caused by inclement weather or equipment malfunction are not considered "ceasing operations" for the purpose of this section, as long as work resumes as soon as possible.
- i. Installation: The permittee shall ensure the BMPs are properly installed at the locations and relative times specified in the SWPPP. Peripheral or border BMPs to control runoff from disturbed areas shall be installed or marked for preservation before general site clearing is started. Storm water discharges from disturbed areas, which leave the site, shall pass through an appropriate impediment to sediment movement, such as a sedimentation basin, sediment traps, silt fences, etc. prior to leaving the land disturbance site. A drainage course change shall be clearly marked on a site map and described in the SWPPP. The location of all BMPs must be indicated on a site map, included in the SWPPP.
- j. Sedimentation Basins: The SWPPP shall require a sedimentation basin for each drainage area with 10 or more acres disturbed at one time. The sedimentation basin shall be sized to contain a volume of at least 3600 cubic feet per each disturbed acre draining thereto. Accumulated sediment shall be removed from the basin as needed to ensure the minimum volume of 3600 cubic feet is maintained. Discharges from the basin shall not cause scouring of the banks or bottom of the receiving stream. The SWPPP shall require the basin be maintained until final stabilization of the disturbed area served by the basin.

Where use of a sediment basin of this size is impractical, the SWPPP shall evaluate and specify other similarly effective BMPs to be employed to control erosion and sediment delivery. These similarly effective BMPs shall be selected from appropriate BMP guidance documents authorized by this permit. The BMPs must provide equivalent protection. The SWPPP shall require both temporary and permanent sedimentation basins to have a stabilized spillway to minimize the potential for erosion of the spillway or basin embankment.

- k. Dewatering: The SWPPP shall require a description of any anticipated dewatering methods, including the anticipated volume of water to be discharged and the anticipated maximum flow discharged from these dewatering activities, expressed in gallons per minute. Maximum flow may be stated in the SWPPP as an estimate based on the type and capacity of equipment being used for dewatering. The SWPPP shall call for specific BMPs designed to treat water pumped from excavations and in no case shall this water be pumped off site without being treated by the specified BMPs.
- l. Roadways: Where applicable, upon installation of or connection to roadways, all efforts should be made to prevent the deposition of earth and sediment onto roadways through the use of proper BMPs. Where sediment is present on roadways all storm water curb inlets shall have inlet protection. Where storm water will flow off the end of where a roadway terminates, a sediment catching BMP (ex. gravel berm, silt fence, etc.) shall be provided. Roadways and curb inlets shall be cleaned weekly or following a rainfall that generates a run-off. Stabilized construction entrances shall be used to prevent sediment trackout.

11. Amending/Updating the SWPPP: The permittee shall amend and update the SWPPP as appropriate during the term of the land disturbance activity. The permittee shall amend the SWPPP, at a minimum, whenever the:
 - a. Design, operation, or maintenance of BMPs is changed;
 - b. Design of the construction project is changed that could significantly affect the quality of the storm water discharges;
 - c. Permittee's inspections indicate deficiencies in the SWPPP or any BMP;
 - d. MDNR notifies the permittee in writing of deficiencies in the SWPPP;
 - e. SWPPP is determined to be ineffective in significantly minimizing or controlling erosion and sedimentation (e.g., there is visual evidence, such as excessive site erosion or excessive sediment deposits in streams or lakes);
 - f. Total Settleable Solids from a storm water outfall exceed 2.5 mg/L/hr (or 0.5 mg/L/hr if discharged to a valuable resource water);
 - g. MDNR determines violations of Water Quality Standards may occur or have occurred.
12. Site Inspections Reports: Regularly scheduled inspections shall be at a minimum once per seven calendar days. These inspections shall be conducted by the person responsible for environmental matters at the site, or a person trained by and directly supervised by the person responsible for environmental matters at the site. For disturbed areas that have not been finally stabilized, all installed BMPs and other pollution control measures shall be inspected for proper installation, operation and maintenance. All storm water outfalls shall be inspected for evidence of erosion or sediment deposition. The receiving stream shall also be inspected for 50 feet downstream of the outfall. Any problems shall be noted in an inspection report and corrected within seven calendar days of the inspection. If a rainfall causes storm water runoff to occur on site, the BMPs must be inspected within a reasonable time period (not to exceed 48 hours). The SWPPP must explain how the person responsible for erosion control, will be notified when storm water runoff occurs. If weather conditions make it impossible to correct the problem within seven days, a detailed report of the problem (including pictures), must be filed with the regular inspection reports. The permittee shall correct BMP malfunctions as soon as weather conditions allow. Parts of the site that have been finally stabilized may be inspected once per month. (A once per month inspection schedule may be implemented for a site with interim stabilization if the permittee makes a written request for the schedule and it is approved by the Department.) A log of each inspection shall be kept. The inspection report is to include the following minimum information: inspector's name, date of inspection, observations relative to the effectiveness of the BMPs, actions taken or necessary to correct problems, and listing of areas where land disturbance operations have permanently or temporarily stopped. The inspection report shall be signed by the permittee or by the person performing the inspection if duly authorized to do so.
13. Proper Operation and Maintenance: The permittee shall at all times maintain all pollution control measures and systems in good order to achieve compliance with the terms of this general permit.
14. Public Notification: The permittee shall post a copy of the public notification sign described by the department on the information board at the main entrance to the site. The public notification sign must remain posted at the site until the site has been finally stabilized.

OTHER DISCHARGES

1. Hazardous Substance and Oil Spill Reporting: Refer to Section B, #14 of Part I of the Standard Conditions that accompany this permit.
2. Removed substances: Refer to Section B, #6 of Part I of the Standard Conditions that accompany this permit.
3. Change in discharge: In the event soil contamination or hazardous substances are discovered at the site during land disturbance activities, the permittee shall notify the MDNR regional office by telephone as soon as practicable and no later than 24 hours after discovery. The permittee must also notify the MDNR regional office in writing no later than 14 calendar days after discovery.

SAMPLING REQUIREMENTS AND EFFLUENT LIMITATIONS

1. Discharges shall not violate Water Quality Standards 10 CSR 20-7.031(3). Total Settable Solids shall not exceed a maximum of 2.5 ml/L/hr. for each storm water outfall. If there is a discharge to valuable resource waters, Total Settable Solids shall not exceed a maximum of 0.5 ml/L/hr.
2. There are no regular sampling requirements in this permit. However, the Department may require sampling and reporting as a result of illegal discharges, compliance issues, complaint investigations, or other such evidence of off-site contamination from activities at the site. If such an action is needed, the Department will specify in writing any additional sampling requirements, including such information as location, extent, and parameters.

RECORDS

1. The permittee shall retain copies of this general permit, the SWPPP and all amendments for the site named in the State Operating Permit, results of any monitoring and analysis, and all site inspection records required by this general permit. The records shall be accessible during normal business hours. The records shall be retained for a period of at least three years from the date of the Letter of Termination.
2. The permittee shall provide a copy of the SWPPP to MDNR, USEPA, or any local agency or government representative if they request a copy in the performance of their official duties.
3. The permittee shall provide those who are responsible for installation, operation, or maintenance of any BMP a copy of the SWPPP.
4. The permittee, their representative, and/or the contractor(s) responsible for installation, operation, and maintenance of the BMPs shall have a current copy of the SWPPP with them when on the project site.

TERMINATION

This permit may be terminated upon the request of the applicant when all sites have been stabilized. A site is considered to be stabilized when either perennial vegetation, pavement, buildings, or structures using permanent materials cover all areas that have been disturbed. With respect to areas that have been vegetated, vegetative cover shall be at least 70% of fully established plant density over 100% of the disturbed area.

In order to terminate the permit, the permittee shall notify MDNR by submitting Form H,

included with the State Operating Permit. The permittee shall complete Form H and mail it to MDNR at the address noted in the cover letter of this permit.

This general permit will expire five years from the effective date of the permit (see page 1). The issue date is the date the State Operating Permit is issued to the applicant. The expiration date may or may not coincide with the date when the authorized project or development is scheduled for completion.

If the project or development completion date will be after the expiration date of this general permit, then the permittee must reapply to the department for the permit to be re-issued. The permittee will receive notification of the expiration date of the permit before the expiration date listed on page 1 of this permit. In order for the permit to be re-issued, the permittee should submit the appropriate application form(s) at least 180 days before the expiration of the permit if land disturbance activity is expected to continue past the expiration date of this general permit.

If the permittee does not apply for the renewal of this permit, this permit will automatically terminate on the expiration date. Continued discharges from a site that has not been fully stabilized are prohibited beyond the expiration date; unless the permit is reissued or the permittee has filed a timely application for the reissuance of this permit.

DUTY TO COMPLY

The permittee shall comply with all conditions of this general permit. Any noncompliance with this general permit constitutes a violation of Chapter 644, Missouri Clean Water Law, and 10 CSR 20-6.200. Noncompliance may result in enforcement action, termination of this authorization, or denial of the permittee's request for renewal.

MAILING ADDRESS